METROLOGIC INSTRUMENTS, INC.

TECH 8™ Laser Bar Code Projection Scanner

Installation and User's Guide

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Unpacking List

The shipping carton, will contain the following:

- TECH 8 Laser Bar Code Projection Scanner
- Installation and User's Guide
- ScanSelect™ Scanner Programming Guide
- Communication Cable (optional) or Communication Cable with Power Supply (optional)
- Stand (optional)

If any item is missing or to order additional items, contact the dealer, distributor or call Metrologic's Customer Service Department at 1-800-ID-METRO or 1-800-436-3876.

Introduction

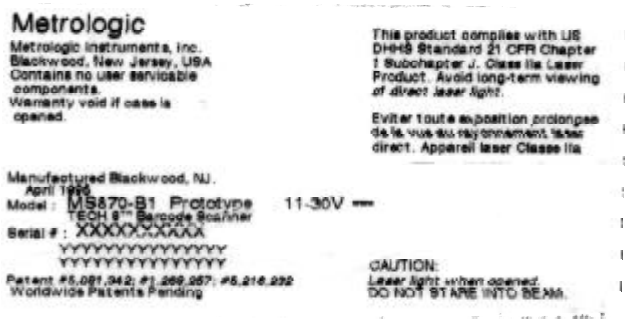
Metrologic's TECH 8 laser bar code projection scanner is encased in an NEMA-12 steel case. The scanner's construction enables the scanner to operate in harsh surroundings, especially industrial environments. Water-resistant, shock-resistant, and rugged, the TECH 8 scanner is also fast, aggressive and reliable. It can register bar codes at a range of 203mm - 457mm (8" - 18") and can autodiscriminate among all common codes.

Among the scanner's many features is an ASIC (Application Specific Integrated Circuit) in the decoding system that virtually eliminates misreads and MECCA© (Metrologic Enhanced Code Correcting Algorithm). MECCA© enables the scanner to read poorly printed, wrinkled or even torn bar codes on the first pass.

The scanner has been configured at the time of manufacture based on information supplied at the time of order.

Labels

One label is found inside the window of the scanner noting that this device is a CDRH Class IIa laser product and EN 60825-1 LASERKLASSE 1. Also, on the scanner is a label on the back of the unit. This label contains information such as the model number, the date of manufacture and the serial number. The following are samples of the labels that are found on the unit.


Metrologic
Metrologic Instruments, Inc.
Blackwood, New Jersey, USA
Contains no user serviceable components.
Warranty void if case is opened.
This product complies with US DHHS Standard 21 CFR Chapter 1 Subchapter J. Class IIa Laser Product. Avoid long-term viewing of direct laser light.
Manufactured Blackwood, NJ.
April 1998
Model : MS870-B1 Prototype
11-30V
Serial # : XXXXXXXXXX
CAUTION:
Laser light when opened.
DO NOT STARE INTO BEAM.
Worldwide Patents Pending

Complies with 21 CFR Chapter 1 subchapter J. Class IIa laser product. Avoid long-term viewing of direct laser light.
LASERKLASSE 1

Applications and Protocols

The following chart lists the version identifiers for all the communication protocols. Listed on each scanner is a model number. The model number includes the scanner number, revision label, and denoted version identifier. For example, if the model number is MS870-B1, the scanner is an MS870, B is the revision level, and 1 is the version identifier.

B UNITS

Scanner	Version Identifier	Communication Protocol(s)
MS870	1	RS-232, OCIA
MS870	15	Light Pen Emulation

Maintenance

Smudges or dirt that appears on the scanner window can interfere with proper scanning. Therefore, the window will need occasional cleaning.

1. Spray glass cleaner onto lint free, non-abrasive cleaning cloth.

2. Gently wipe the scanner window.

Configuration of the Scanner to the Host System

The scanner has been configured at the time of manufacture based on information supplied at the time of order. If ScanSet™ is being used, refer to the ScanSet documentation for information on how to configure your scanner.

Scanner Connections

In order for the scanner to maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (Safety Extra Low Voltage) according to EN 60825-1.

To avoid potential problems, **do not power up the scanner until the communication cable is secured to the host.**

1. Turn off the host system.

2. Find the 19-pin female end of the scanner link cable and the widest key located above pins L and A. Align this key with the corresponding key on the scanner box's Mil spec connector. While pushing in on the connector, rotate the ring clockwise until it locks into place with a click.

3. Connect the other end of the communication cable to the host device. (If the scanner will not receive power from a transformer, skip to Step 6.)

4. If the scanner will receive power from an external power source, check the AC input requirements of the transformer to make sure the voltage matches the AC outlet. (A socket-outlet shall be installed near the equipment and shall be easily accessible.)

5. Plug the transformer into the AC outlet to supply power to the scanner.

6. Power up the host system.

7. Scan a few items to verify that data is being properly transmitted between the scanner and the host device.

Attaching the Scanner to the Stand and Work Surface

The scanner can be positioned in a vertical orientation with the Metrologic stand (Part #45478). To attach the unit to the stand and work surface purchase the following: four 6-32 x ½" (maximum length) machine screws and two #10 panhead or #8 countersunk wood screws.

1. Lay the scanner face down on a clean cloth to prevent any scratches from occurring on the output window. Position the scanner so the red and green LEDs are pointed toward yourself.

2. Lay the stand on the scanner with the angled bracket pointing up and toward yourself.

3. Align the four clearance holes to the four holes in the scanner's case. Fasten the scanner to the stand by inserting the four 6-32 x ½" screws into the four holes in the scanner's case.

4. Drill two holes into the work surface that correspond with the holes in the 216mm - 95mm (8.5" x 3.75") base of the stand.

5. Use two panhead or countersunk wood screws to attach the scanner and stand to the work surface. *(Refer to Figure 1)*

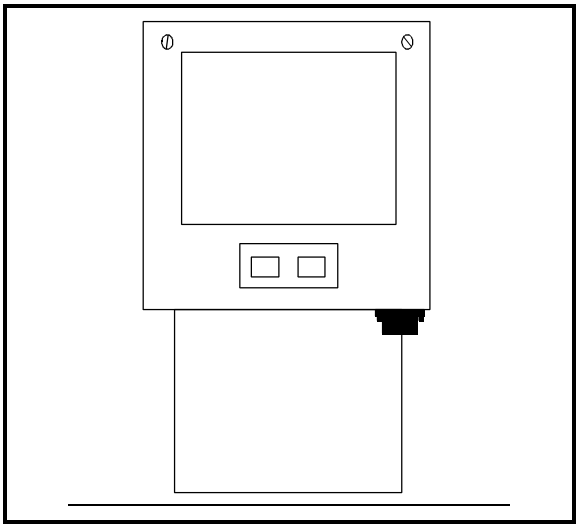


Figure 1

Scanning Bar Codes

The depth of field for the scanner is 203mm to 457mm (8" to 18") from the scanner window. The symbol must be passed through the scan area in order for the scanner to recognize the bar code. *(Refer to Figure 2)*

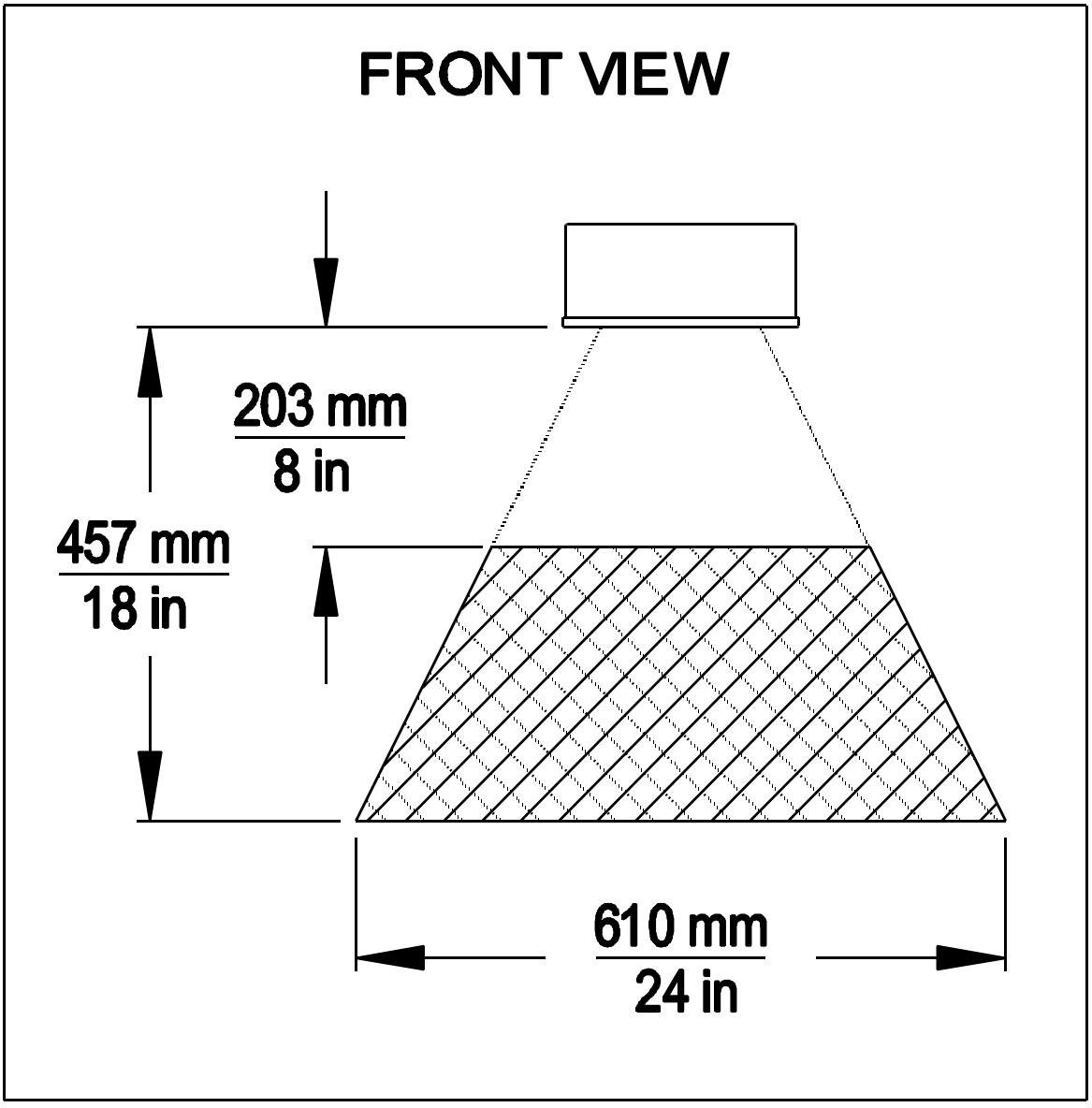


Figure 4

Appendix A

TECH 8™ Laser Bar Code Scanner Specifications	
Application	Industrial Scanner
Light Source	Visible Laser Diode 670 ± 5nm
Laser Class	CDRH: Class IIa; EN 60825: Class 1
Certifications	CE, UL listed for US and Canada
EMC	FCC Class A, CISPR Class A
Mechanical	
Dimensions	203mm x 216mm x 96mm (8"L x 8.5"W x 3.8"D)
Weight	3.5kg. (7.75 lbs.) without cable
Orientation	May be used in any orientation
Mounting	Vertical stand
Top Cover	NEMA-12 steel case
Cable Length	1.83m (6') cable with mil spec connector
Electrical	
Power	9 watts, host system or wall transformer
Input Voltage	11-30 VDC
Operating Current	450mA typical @ 20V
Standby Current	210mA typical @ 20V
DC Transformers	6061/6113-220V (AC in) 6062/6114-120V (AC in) 6115-240V (AC in) output 24/20VDC @ 750mA

Patents Pending
Specifications subject to change without notice.

Operational	
Depth of Scan Field	203mm to 457mm (8" to 18")
Scan Speed	Model 870 1250 scan lines per second Model 875: 450 scan lines per second
Scan Pattern	Model 870: Omnidirectional (20 interlocking lines) Model 875: 6-line raster
Indicators	LED: green=on ready to scan; red=good read
Beeper Operation	Selection of 3 tones for "Good Read"
Maintenance Required	Clean window periodically
Decode Capability	Autodiscriminates
System Interfaces	RS-232C; Light Pen Emulation; OCIA
Optional Interfaces	Opto coupled 6 amp Us and Canada, 5 amps EEA countries TRIAC output; object sensor input
Print Contrast	35% minimum reflectance difference
Roll, Pitch, Yaw	360E, 60E, 60E
Environmental	
Storage Temperature	-40EC to 60EC (-40EF to 140EF)
Operating Temperature	0EC to 35EC (32EF to 95EF)
Humidity	5% to 95% relative humidity, non-condensing
Light Levels	Up to 3200 foot candles - works in direct sun
Ventilation	None required
Shock	100g for 1ms
ESD	8kV IEC 801-2
Contaminants	Protects against dust, falling dirt, and dripping non-corrosive liquid

Patents Pending

Specifications subject to change without notice.

Appendix B

Version A1 Pin Assignments for the Mil spec Connector

Each TECH 8 scanner has a 19-pin male Mil spec connector that is found on the side of the unit. To connect the scanner to the host device, use a communication cable with a female Mil spec connector. The communication cable may include a power transformer or it may be designed to draw power directly from the host device. This item can be ordered when the scanner is purchased.

The following is a list of pin assignments for Version A1 scanners. The communication protocols for Version A1 are RS-232 and OCIA. The pin numbers are impressed on the male Mil spec connector. For easier reference, refer to Figure 4 for pin locations.

PIN	FUNCTION
A	R Data
B	RTS Output
C	Signal Ground
D	CTS Input
E	R Data Return
F	RS-232 Output
G	Clock In
H	Clock In Return
J	Clock Out
K	Shield Ground
L	DTR Input
M	Clock Out Return
N	Power to Scanner + 24 VDC
P	Earth Ground
R	Power Ground
S	RS-232 Input

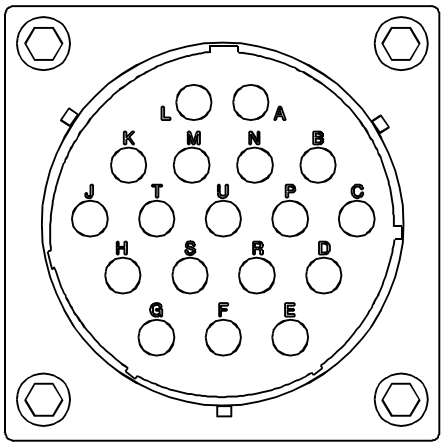


Figure 4

Version A15 Pin Assignments for the Mil spec Connector

Each TECH 8 scanner has a 19-pin male Mil spec connector that is found on the side of the unit. To connect the scanner to the host device, use a communication cable with a female Mil spec connector. The communication cable may include a power transformer or it may be designed to draw power directly from the host device. This item can be ordered when the scanner is purchased.

The following is a list of pin assignments for Version A15 scanners. The communication protocol for Version A15 is light pen emulation. The pin numbers are impressed on the male Mil spec connector. For easier reference, refer to Figure 5 for pin locations.

PIN	FUNCTION
A	R Data
B	Light Pen Data Output
C	Signal Ground
D	Light Pen Source + 5 VDC
E	R Data Return
F	RS-232 Output
G	Clock In
H	Clock In Return
J	Clock Out
K	Shield Ground
L	DTR Input
M	Clock Out Return
N	Power to Scanner + 24 VDC
P	Earth Ground
R	Power Ground
S	RS-232 Input

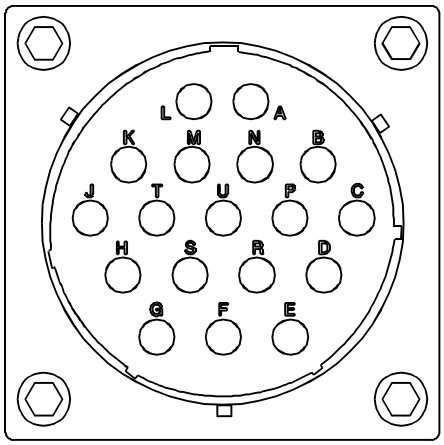


Figure 5

Appendix C

Warranty and Disclaimer

Limited Warranty

Products manufactured by Metrologic have a 2-year limited warranty from date of manufacture.

This warranty is limited to repair, replacement or refund at Metrologic's discretion. Faulty equipment must be returned to the Metrologic facility in Blackwood, New Jersey or Puchheim, Germany. To do this, contact Metrologic Customer Service/Repair for a Returned Material Authorization (RMA) number.

In the event that it is determined that the equipment failure is covered under the warranty, Metrologic shall, as its sole option, repair, replace with a functionally equivalent unit, or refund an amount equal to the purchase price to the original purchaser, whether distributor, dealer/reseller, or retail consumer, and return the equipment to the customer without charge for service or return freight.

This limited warranty does not extend to any Product which, in the sole judgement of Metrologic, has been subjected to misuse, neglect, improper installation or accident, nor does it extend to any Product which has been repaired or altered by anyone who is not a Metrologic authorized representative.

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Appendix D

Notices

Notice

This equipment has been tested and found to comply with limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense. Any unauthorized changes or modifications to this equipment could void the users authority to operate this device.

Notice

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Industry and Canada.

Caution

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous laser light. Under no circumstances should the customer attempt to service the laser scanner. Never attempt to look at the laser beam, even if the scanner appears to be nonfunctional. Never open the scanner in an attempt to look into the device. Doing so could result in hazardous laser light exposure. The use of optical instruments with the laser equipment will increase eye hazard.

Remarque

Après contrôle de cet appareil, on a noté qu'il répondait aux valeurs limites de la classe A, conformément à la partie 15 des directives de l'administration fédérale américaine pour les télécommunications. Ces valeurs limites ont été prévues pour garantir une protection suffisante contre les effets nocifs dus à l'emploi de l'appareil dans un magasin. L'appareil génère et utilise une énergie haute fréquence et peut, s'il n'est pas installé et utilisé conformément aux instructions mentionnées dans le guide d'utilisation, entraîner des perturbations dans la radiocommunications. L'utilisation de cet appareil dans une zone d'habitation entraînera très vraisemblablement des perturbations. Dans ce cas, l'utilisateur est tenu de remédier à ces perturbations à ses propres frais. Toute modification ou remplacement non autorisé sur cet appareil peut entraîner l'invalidité de l'autorisation d'utilisation de l'appareil.

Remarque

Cet appareil numérique ne va pas contre les valeurs limites pour émissions de bruits radios des appareils numérique de la classe A, conformément aux directives relatives aux perturbations des radiocommunications du ministère canadien pour l'industrie.

Attention
L'emploi de commandes, réglages ou procédés autres que ceux décrits ici peut entraîner de graves irradiations. Le client ne doit en aucun cas essayer d'entretenir lui-même le scanner ou le laser. Ne regardez jamais directement le rayon laser, même si vous croyez que le scanner est inactif. N'ouvrez jamais le scanner pour regarder dans l'appareil. Ce faisant, vous vous exposez à une rayonnement laser mortel. L'emploi d'appareils optiques avec cet équipement laser augmente le risque d'endommagement de la vision.

Anmerkung
Nach Überprüfung dieses Geräts wurde festgestellt, daß es den Grenzwerten für Digitalgeräte der Klasse A gemäß Teil 15 der Richtlinien der US-amerikanischen Bundesbehörde für das Fernmeldewesen entspricht. Diese Grenzwerte wurden festgelegt, um einen angemessenen Schutz gegen schädliche Auswirkungen bei Einsatz des Geräts in einer Ladenumgebung zu gewähren. Das Gerät erzeugt und verwendet Hochfrequenzenergie und kann diese ausstrahlen, und kann, falls es nicht gemäß den im Bedienerhandbuch enthaltenen Anweisungen installiert und verwendet wird, zu einer Störung des Funkverkehrs führen. Der Betrieb dieses Geräts in einem Wohngebiet führt höchstwahrscheinlich zu Störungen. In diesem Fall ist der Bediener verpflichtet, die Störung auf eigene Kosten zu beseitigen. Durch jegliche unerlaubte Auswechselung oder Änderung an diesem Gerät könnte die Genehmigung des Bedieners zur Verwendung dieses Geräts ungültig werden.

Anmerkung
Dieses Digitalgerät verstößt nicht gegen die Grenzwerte für Funkrauschemissionen von Digitalgeräten der Klasse A gemäß den Richtlinien für Funkstörungen des kanadischen Ministeriums für Industrie.

Achtung
Die Verwendung anderer als der hierin beschriebenen Steuerungen, Einstellungen oder Verfahren kann eine lebensgefährliche Laserstrahlung hervorrufen. Der Kunde sollte unter keinen Umständen versuchen, den Laser-Scanner selbst zu warten. Sehen Sie niemals in den Laserstrahl, selbst wenn Sie glauben, daß der Scanner nicht aktiv ist. Öffnen Sie niemals den Scanner, um in das Gerät hineinzusehen. Wenn Sie dies tun, können Sie sich einer lebensgefährlichen Laserstrahlung aussetzen. Der Einsatz optischer Geräte mit dieser Laserausrüstung erhöht das Risiko einer Sehschädigung.

N.B.
Dal controllo di questo apparecchio risulta che esso risponde ai valori limite per apparecchi digitali della classe A conf. parte 15 delle direttive sulle telecomunicazioni dell'Autorità federale statunitense. Questi valori limite sono stati fissati per garantire una protezione adeguata contro gli effetti nocivi se questo apparecchio viene usato all'intero di un negozio. L'apparecchio genera, utilizza e può emettere energia ad alta frequenza e, se non viene installato ed utilizzato conformemente alle indicazioni fornite nel Manuale utente, può provocare disturbi al servizio radiofonico. L'uso di questo apparecchio in zone residenziali causa molto probabilmente dei disturbi. In questo caso l'utente è obbligato ad eliminare questi disturbi a sue spese. Qualsiasi sostituzione o modifica non autorizzata all'apparecchio potrebbe rendere invalida l'autorizzazione dell'utente all'uso dell'apparecchio.

N.B.
Questo apparecchio digitale non supera I valori limite per l'emissione di radiorumori da parte di apparecchi digitali della classe A conformemente alle direttive per radiodisturbi del Ministero canadese per l'Industria.

Attenzione
L'utilizzo di sistemi di controllo, di regolazioni o di procedimenti diversi da quelli decritti nel presente Manuale può provocare dei raggi laser pericolosi per la vita. Il cliente non deve assolutamente tentare di riparare egli stesso lo scanner laser. Non guardate mai nel raggio laser, anche se credete che lo scanner non sia attivo. Non aprite mai lo scanner per guardare dentro l'apparecchio. Se tuttavia lo fate, potete esporVi a dei raggi laser pericolosi per la vita. L'uso di apparecchi ottici con questo equipaggiamento laser aumenta il rischio di danni alla vista.

Appendix E

Patents

“Patent Information

This METROLOGIC product may be covered by one or more of the following U.S. Patents:

U.S. Patent No. 4,360,798; 4,369,361; 4,387,297; 4,460,120; 4,496,831; 4,593,186; 4,607,156; 4,673,805; 4,736,095; 4,758,717; 4,816,660; 4,845,350; 4,896,026; 4,923,281; 4,933,538; 4,992,717; 5,015,833; 5,017,765; 5,059,779; 5,117,098; 5,124,539; 5,130,520; 5,132,525; 5,140,144; 5,149,950; 5,180,904; 5,200,599; 5,229,591; 5,247,162; 5,250,790; 5,250,791; 5,250,792; 5,262,628; 5,280,162; 5,280,164; 5,304,788; 5,321,246; 5,324,924; 5,396,053; 5,396,055; 5,408,081; 5,410,139; 5,436,440; 5,449,891; 5,468,949; 5,479,000; 5,532,469; 5,545,889,

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